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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,292	10/14/2003	Giuseppe Calarco	854063.736	9819

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EXAMINER	
LIANG, REGINA	
ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/685,292	**Applicant(s)** CALARCO ET AL.
	Examiner Regina Liang	**Art Unit** 2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2006*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-53* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to amendment filed 10/4/06. Claims 1-53 are pending in the application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13, 15, 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 and 15 are confusing since claim 13 requires the activation of a function upon detecting the variations are greater than first preset thresholds while claim 15 requires the variation are lower than the first preset thresholds, so claims 13 and 15 are contradicting to each other.

Claim 21 recites the limitation "said first thresholds" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 8-12, 16-18, 20, 23-26, 30, 33, 34, 36, 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Svancarek et al (US 6,249,274 hereinafter Svancarek).

As to claims 1, 16, 23, 30, Svancarek discloses a user controller device (user input 100), comprising a body (Fig. 3A), movable into a plurality of positions of a three-dimensional space, and a MEMs acceleration sensor (inclination sensor 104, and see col. 8, lines 23-28) coupled to the body and configured to detect 3D movement of the device and send control signals correlated to the positions to a computer screen or an electrical appliance (Fig. 8 and col. 2, lines 35-39).

As to claims 3, 17, 24, 25, 37, Fig. 3A of Svancarek teaches the body is supported so as to be tiltable around two axes.

As to claim 8, Svancarek teaches the MEMs acceleration sensor comprises at a two-axis accelerometer or two one-axis accelerometers (col. 6, lines 27-31).

As to claims 9, 18, Svancarek teaches the MEMS acceleration senses generates position signals, the device further comprising a microcontroller for generating the control signals from the position signals (102 in Fig. 2).

As to claim 10, Fig. 2, 3A of Svancarek teaches the transmission means (118) for connecting the microcontroller to the electrical appliance, the transmission means including a wire transmissive medium and a communication port (see Fig. 2).

As to claim 11, Svancarek teaches the transmission means including an RF communication port for allowing wireless communication with the electrical appliance (col. 4, lines 30-31).

As to claims 12, 26, 33, 34, Svancarek teaches the microcontroller generates a first control signal and a second control signal as claimed (Fig. 3A, col. 4, lines 50-61).

As to claim 20, Svancarek teaches the control signals comprising displacing signals for displacing a cursor along two directions.

As to claim 36, note the discussion of claim 1 above. Furthermore, Fig. 1 of Svancarek teaches the system comprising a computer screen (47), a CPU (20), a pointing device (Fig. 2) a microprocessor (102 in Fig. 2).

6. Claims 42, 44, 46, 51-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Orchard (US 6,834,249).

As to claim 42, Orchard discloses a device comprising a body (handheld computing device), a sensor (Fig. 1, motion detection sensors 130) coupled to the body and configured to produce a first signal corresponding to rotation of the body around a first axis (Figs. 5-11), and a circuit configured to produce a first function command when the first signal indicates rotation of the body exceeds a threshold (col. 8, lines 57-67).

As to claim 44, Orchard teaches the circuit is configured to produce the first function command and second function command as claimed (see Figs. 5-11, and col. 8, lines 57-67; e.g., Fig. 5, rotate to the left and select Icon 1 corresponds to the first function command, rotate to the right and select Icon 2 corresponds to the second function command).

As to claim 46, Orchard teaches the threshold is a rotation speed threshold (motion threshold).

As to claims 51, 52, Orchard teaches rotating the device about Y axis (Fig. 5) and selecting the Icon 1 or 2 when the motion sensor reaches the threshold, this corresponds to produce a first function command when the first signal indicates rotation of the body exceeds a threshold; Fig. 8 of Orchard teaches rotating the device about X-axis and updating the display contents when the motion sensor reaches the threshold (col. 9, lines 20-29), this corresponds to produce a second signal corresponding to rotation of the body around a second axis perpendicular to the first axis, and to produce a second function command when the second signal indicates rotation of the body exceeding a second threshold; Fig. 10 of Orchard teaches move the device in Z-plane and updating the display content when the motion sensor reaches the threshold (col. 9, lines 45-55), this corresponds to produce a third signal corresponding to movement to the body along a third axis perpendicular to the first and second axes, and to produce a third command when the third signal indicates movement of the body as claimed.

As to claim 53, Orchard teaches the sensor is a micro-electro mechanical type sensor (col. 4, lines 49-50).

7. Claims 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek.

As to claim 2, Svancarek does not disclose the body is in a form selected between computer mouse, joystick, gamepad, and PDA. However, Svancarek teaches it is well known in the art that user input device comprising a joystick, a mouse, a game pad, etc. (col. 3, lines 20-25) for entering commands and information into a computer. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user input device of Svancarek to be in a form selected between computer mouse, joystick, gamepad, and

PDA so as to input commands and information into a computer since such forms are well known and familiar to the user. Furthermore, a change in shape of the input device would have been obvious to one having ordinary skill in the art at the time the invention was made, since a mere change in shape or form involves only routine skill in the art. *In re Dailey,* 149 USPQ 47 (CCPA 1976).

As to claim 4, note the discussion of claim 2, the body of Svancarek as modified would be a mouse shaped. Svancarek does not disclose the body is supported by rounded base, at least one spring, yieldable balls or elastically supported balls. However, it would have been an obvious matter of design choice to modify the body of the user controlled device of Svancarek to have the limitation as claimed, since such a modification would have involved a mere change in the shape of a component. Furthermore, a change in shape of the input device would have been obvious to one having ordinary skill in the art at the time the invention was made, since a mere change in shape or form involves only routine skill in the art. *In re Dailey,* 149 USPQ 47 (CCPA 1976).

8. Claims 5, 6, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek in view of Kuga (US 5,701,131).

As to claims 5, 6 and 35, Svancarek teaches the body is a housing accommodating the MEMs acceleration sensor. Svancarek does not teach the body is fixed to an article to be worn by a user. However, Figs. 1 and 2 of Kugo teaches a user controlled device is fixed to a goggle (4) to be worn by a user. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user controlled device of Svancarek to be mounted to user's head as taught by Kuga so as to provide a hand free input control device.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek and Kuga as applied to claim 6 above, and further in view of Davison (US 4,682,159).

Kuga teaches the article is an eyeglasses. Svancarek as modified by Kuga does not explicitly disclose the article is a hairband. However, Davison teaches a pointing device is mounted in a hairband. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user input device of Svancarek as modified by Kuga to be mounted to hairband as taught by Davision so as to provide a hand free input control device.

10. Claims 13, 14, 38-47, 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek in view of Orchard (US 6,834,249).

As to claims 13, 38, 42, Svancarek teaches the microcontroller comprises means for activation of predetermined functions upon activating control buttons (col. 3, lines 18-20, col. 4, lines 17-22). Svancarek does not disclose activation of predetermined functions upon detecting variations of the position signals greater than first preset thresholds. However, Orchard teaches a user controlled device comprising motion sensors, the controller activating a function upon detecting the motion sensors reach a motion threshold (the motion threshold corresponds to the first preset thresholds; see col. 7, lines 23-25, col. 8, lines 62-67 for example). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the input device of Svancarek to have the feature of motion thresholds as taught by Orchard since this enables a user to intuitively control the function of a computing device without the conventional need of pressing buttons (col. 2, lines 37-40 of Orchard).

As to claims 14, 39, 43, Svancarek teaches it is well known in the art that user input device comprising a joystick, a mouse, a game pad, etc. (col. 3, lines 20-25) for entering commands and information into a computer and that Svancarek's input device is also for entering commands and information into a computer. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the input device of Svancarek to comprise the well known click function in order to emulate a mouse for entering commands and information into a computer.

As to claims 40, 41, Orchard teaches the threshold is a movement speed or amplitude threshold (motion threshold).

As to claim 44, Svancarek as modified by Orchard teaches the circuit is configured to produce the first function command and second function command in a first direction and second direction as claimed (see Figs. 5-11, and col. 8, lines 57-67, e.g., Fig. 5, rotate to the left and select Icon 1 corresponds to the first function command, rotate to the right and select Icon 2 corresponds to the second function command).

As to claim 45, Svancarek as modified Orchard does not disclose the first function command is a left click command and the second function command is a right click command. However, it is old and well known in the art that a mouse click command comprises a left click command and a right click command. Thus it would have been further obvious to one of ordinary skill in the art at the time the invention was made to modify the user controlled device of Svancarek as modified by Orchard to have a left click command and a right click so as to provide a conventional mouse clicking functions.

As to claim 46, Orchard teaches threshold is a rotation speed threshold (motion threshold).

As to claim 47, Svancarek teaches producing a cursor movement command in a first direction.

As to claims 51, 52, Orchard teaches rotating the device about Y axis (Fig. 5) and selecting the Icon when the motion sensor reaches the threshold, this corresponds to produce a first function command when the first signal indicates rotation of the body exceeds a threshold; Fig. 8 of Orchard teaches rotating the device about X-axis and updating the display contents when the motion sensor reaches the threshold (col. 9, lines 20-29), this corresponds to produce a second signal corresponding to rotation of the body around a second axis perpendicular to the first axis, and to produce a second function command when the second signal indicates rotation of the body exceeding a second threshold; Fig. 10 of Orchard teaches move the device in Z-plane and updating the display content when the motion sensor reaches the threshold (col. 9, lines 45-55), this corresponds to produce a third signal corresponding to movement to the body along a third axis perpendicular to the first and second axes, and to produce a third command when the third signal indicates movement of the body as claimed.

As to claim 53, Svancarek teaches the sensor is a MEMs sensor.

11. Claims 15, 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek and Orchard, and further in view of Bartlett (US 6,773,883).

As to claims 15, 48, Svancarek as modified by Orchard does not disclose the microcontroller generates the control signal only if the variations are high than second preset thresholds. Bartlett teaches a microcontroller of a user control device generating the control signal only if the variations are high than second preset thresholds (θ1 > θ; θ corresponds to second preset thresholds, see col. 5, lines 35-47). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the microcontroller of Svancarek as modified by Orchard to generate the control signal only if the variations are high than second preset thresholds as taught by Bartlett so as to prevent a response to small movements or unintentional movements (col. 5, lines 40 of Bartlett).

As to claim 49, Bartlett teaches the second threshold is a rotation amplitude threshold.

As to claim 50, it is inherent that the thresholds of Bartlett are selectable by a user of the device.

12. Claims 19, 27, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek in view of Bartlett.

As to claims 19, 27, Svancarek does not disclose comparing the position signals with respective first thresholds and generating the control signals upon detecting that the position signals exceed the respective first thresholds. Bartlett teaches a user control device comparing the position signals with respective first thresholds and generating the control signals upon detecting that the position signals exceed the respective first thresholds (θ1 > θ; θ corresponds to first preset thresholds, see col. 5, lines 35-47). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the input device Svancarek to generate the control signal upon detecting that the position signals exceed the first thresholds as taught by Bartlett so as to prevent a response to small movements or unintentional movements (col. 5, lines 40 of Bartlett).

As to claim 31, Bartlett teaches producing control signals includes ignoring movement signals that do not exceed a first selected threshold ($\theta 1 < \theta$, col. 5, lines 40-42).

13. Claims 21, 22, 28, 29, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Svancarek and Bartlett, and further in view Orchard.

As to claims 21, 28, 32, Svancarek as modified by Bartlett does not generating functions activation signals upon detecting the position signals exceed the second preset thresholds. However, Orchard teaches a user controlled device comprising motion sensors, the controller activating a function upon detecting the motion sensors reach a motion threshold (the motion threshold corresponds to the second preset thresholds; see col. 7, lines 23-25, col. 8, lines 62-67 for example). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the input device of Svancarek as modified by Bartlett to have the feature of motion threshold as taught by Orchard since this enables a user to intuitively control the function of a computing device without the connectional need of pressing buttons (col. 2, lines 37-40 of Orchard).

As to claims 22, 29, Svancarek as modified teaches the function including clicking functions (see the discussion of claim 14 above).

Response to Arguments

14. Applicant's arguments with respect to claims 1-53 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fleming (US 6,933,933) teaches a input device comprising MEMS accelerometer.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Regina Liang
Primary Examiner
Art Unit 2674

12/8/06